<u>IN THE SPECIFICATION:</u>

Please rewrite the sixth paragraph on page 2, which starts "Brief description of the accompanying drawings" as follows:

Brief description of the accompanying drawings

Fig. 1a.   Information storage in DNA. Structure of prototypical single segment information storage in DNA strand.

Fig. 1b.   Information storage in DNA. Structure of prototypical multi segment information storage in DNA strand.

Fig. 2.   Encryption of extended ASCII character set in terms of DNA bases

Fig.3.   Encryption Key. Extended ASCII characters in terms of DNA strands

<u>Fig. 4   is a process sheet for encryption and storage showing the encoding of digital information for "WELCOME" using the DNA sequence TTAGTACATAGCTATGTACCTAACTACA (SEQ ID NO: 5) and the following primers:</u>

<u>Header Primer: ATTATATATATATTATAT (SEQ ID NO: 8)</u>

<u>Terminating Primer: TTTATATATATATTATTT (SEQ ID NO: 9)</u>

<u>Continued Tail Primer: TTTATATATATATTACCC (SEQ ID NO: 10).</u>

<u>Fig. 5   provides a process summary for encryption and decryption of digital information for "WELCOME" using the DNA sequence of SEQ ID NO: 5 and the header primers of SEQ ID NO: 8.</u>

Fig.4.- ~~Process sheet for encryption & storage~~

Fig.5.- ~~Process summary~~

Please replace the second paragraph from the end of page 4, which starts "b) The input information" with the following:

b)   The input information is then encrypted character-by-character using array generated in step 1. The basis is ASCII values of each character is matched with the element no. of the array of step 1.

Encryption of the text "CSIR" in terms of DNA   bases   may be: **TATGTTTCTATTTTAC** (SEQ ID NO: 5) where:

C is represented by DNA sequence TATG

S is represented by DNA sequence TTTC

I is represented by DNA sequence TATT

R is represented by DNA sequence TTAC

Please replace the fourth paragraph on page 5, which starts "g) The encrypted DNA" with the following:

g)   The encrypted DNA can then be transported on paper, cloths, buttons or through any other medium.

Isolation decryption of above encrypted DNA sequence TATGTTTCTATTTTAC (SEQ ID NO: 1):

3

Please replace the seventh paragraph on page 5, which starts "c) Obtained sequence is" with the following:

c)   Obtained sequence is interpreted (integrated if multi-segment before interpretation) using DNASTORE software. The basis for retrieval is a string of 4-bases each at a time is taken and matched with array as generated in step 1 of encryption and storage. The element number of matching value is taken and converted to its ASCII equivalent.

If the retrieved sequence is TATGTTTCTATTTTAC (SEQ ID NO:1). The Decryption would be:

first 4-bases i.e. "TATG" would be in the array storage and encryption 67 = C

next 4-bases i.e. "TTTC" would be in the array of storage and encryption 83 = S

next 4-bases i.e. "TATT" would be in the array storage and encryption 73 = I

next 4-bases i.e. "TTAC" would be in the array of encryption 67 = R

Integration of above decrypted values in the same sequence as retrieved is "CSIR".

Please replace the first paragraph on page 6, which starts "Example 2. Some examples" with the following:

**Example 2.** Some examples of DNA encryption for textual data

Digital Information   Encrypted DNA sequence

WELCOME   TTAGTACATAGCTATGTACCTAACTACA (SEQ ID NO:2)

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WORLD PEACE TTAGTACCTTACTAGCTATAAGCTTTCCTACATAGG
TATGTACA (SEQ ID NO:3)

INDIA TATTTATCTATATATTTAGG (SEQ ID NO: 4)

CSIR TATGTTTCTATTTTAC (SEQ ID NO:5)

CSIO TATGTTTCTATTTACC (SEQ ID NO:6)

Please replace the paragraph bridging pages 6 through 13, which starts, "Example 3. A JPEG image encrypted" with the following:
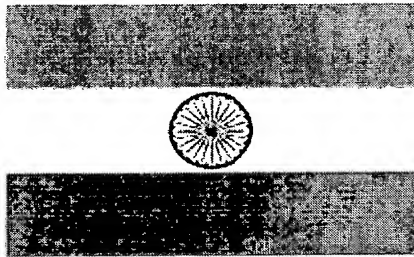
Digital Information   **Encrypted DNA sequence**

TAAATATTTAGAAAACAATCTCGTGGCGATC
GCGCCATCGGCTAACCTATCGATCGCTGGT
CGCGTATCAACAATCGTCGGTCGGTCGCGC
CCTACGGGCTCTTCGAACCCCGTAGGCGAC
ACGGCGCGGCGGATGATTGTCGCCTTGCTA
CCCGTGGTGCGCCCAGACCTTCGACGCTCC
TGGTACCTGCGCCTCATCGTTATCTTTGTTG
GAGTGCAAGATGGAGAGTTTCCCGGACGGC
TAGCAAGCCTGCGTAATATCTCCAAATGTCC
AAAGCTTATTGTTTTCAATAACGTGATCCTTT
ACCTGCACATTAGTATTATCACCAGCGTGCA
CCCATGCGGGCGCCAACCTTGCTGGACTTC
GACGCCGCTGTCGTTGCCCTCTGAGTGAAT
GATTGTGCCCACTGTGGTGGGGCGCCTAGT
CGGTCGGTCGAGGTGTTCATTAATGGATCG
ATCGACCTATCGAGGAATCGATCGATCGAT

5

CGGGCGATCGCGCCATCGATCGATCAGTCG
TCCTACGCCGGCTCTCTCTGCATTTCAGCTC
GCTTATCGAGAGGCCTGTGCAAGGAGCCCT
GTTACATTGGGCTATCTAAGACATGGGGAC
AGTCGGCCGACAGAGTATAATAGGAACCAC
GCCTAATGGATAACAGCTTTCGAAACCCAC
TCCAGAGCCTGTTTACTCTAATTGGCTCCG
GGGCTGATGGTGAGGGCTGTGAACCCGGA
CTCCCAGCCTAGGGAGTACAGACCATGATC
CCTATGCCGGATTAGCCCTAGGCTGTCACA
CTAAGCTATCCTCAGCGTGAGCGTGTCCGG
ACTTCGCAGGCTGTGCGTCTTGAGTGCGCG
AGTGGACGGGCGTGCGGATCCGCGCACGA
ACGCTTCGTCGTTCGGTCGTCTTCACGACC
GCCCAACTTTCCAGCCATCCAGGTAGCCAC
GCAAGCACATACACATACAGACATTTTATAA
TCCACTCTATTATCCAATCTTTCTGCTGATC
TGTCTACCTCGTAGGCTCCCTGGCTTAAGT
GCTAACTCACCAAAGTCCCGACCTACCAAC
CCTCCGTCTTACCACCCTCCTCGCCGCCCG
GCTGCCCTGCCCGCTATGCGGGCAGCATTG
CTAGCCACACAGCAAGCATCAGGGCCTGCG
TCAACGCACGCTCCGTCGGCCGGGCCGCTG
GTCGGTGCGGAGGGGGGAGCGAGGGTAG
GCATGTGGGGTGGATCGCGCTTGGACTCCT
CGGCTGATTTGCTGACCGAGCCGTAGAATG
ATGCTCAGAAGGAGATCGAGATAGACACGA
TACTTATCAGTCTGTGTGTATGTACGTTCGT
CCGTGCGTGGGTAGGTTGGTCGATCGATTG
ATCTACGTTAATCCCACTCTGCGGCGTGAC
ATAATGAATTACCCGCCGCCCACTGTGCTG
CGAAACCCAGTTTACTCAGTTAATCCGACTA

6

TGCCACGGTACAAAATATCCGGGGTGCATC
CGACTTTGCAAATGAATCTAAAGCGCTACGT
TATTGTAAAGATCGTAATTAACGAAGCGGTC
GTTAATTAATCTGAGGTGCAGATGAATACAT
TTAAACCATGCAGTTATTCATCAGTCGCATC
GCAAACTTGTAGACGCTGAATATTAGGTATG
ATTAATGATACGCGTGATGACAATTACGTGT
TTAAGCGCAATTAATTCTGGTAGCGTTATGC
CTGTCAAGGCGGTCCTACAACTAGGTTCGA
TCCTTACGACTGGAAGATGGCTCTACACAC
GGACCCCCAAACCAATTATAGTTACCTAGT
CCTTAAAAACCATACTAGTTTGGCTTTATTG
ATACTAAGACTAAGCTTACGTCCTGACTCGC
GATTAATGGACACACGTTTCCTGACAAGCTC
CTCGGGGGCCATATATATGCCTGACGCCAG
AAACTGGTCTCATTCTCGATATGAAGCGACC
CAAAGCGCGGTGTATCGTTGTCGAATCCAA
CTAAGATGCATCGCGCGCGGCGGATCAATC
TTACGAGACTCAGGTACTAGTGGTATCGTG
GCTGCCTTGTGACGCTTAAATCGTACTTCGT
CGCGATTGATTGTATTATAAACAATCAGCAA
ATTAAATCGATGGCGGACTTTATAAAGCTAA
ACTACGCCTTTAAGTTACGCGCTGTGAGCA
GCTGAGGCCGGTTCCTTAAGTTCCATACATT
CTATCAATAGCGCTTCCTGCCTAGGTATGG
GCTCTAGGGCTATCTTGCTAAAGTTGACTCA
GAGAGAATTACCTCGGAATAAAACAACACG
CGGCAGTCAGATTTTGTCACTATTTTTACGT
AACTAGGGTGATCTCCGGAATGTCAACTCC
GGGCCCCCACACGATGGTGGAGATCTCCTC
GCCCGTGGGCTTCTGGACTAGACGTTAGGG
CATGCACATACGTTGACGAAATTGTTACGCG

GAGACGATAGAATTTATAACCTTTCCACCAT
CTAGTATGAGGGATTCATACGCTGCCCTTCT
CCTAATAGGAACGTACACTAAATTAATTGCC
GTGCTACCAATGCGACTACTTTGGGATAAC
GGCCTGCGGTTGTCGTCGGGTGAACTATCC
TATCGTTCGACTCTATAGCAAGGCTTATCGT
GCTAACTAATTTACATAGTAGGACTATCGCC
ACACGGGATGCACATACCCGACTATCGGGT
CCCAGAGACTACGTTGAGGAAAGCCAGGCT
TAGTTTTACACATTAACCGATGGCGTGACGG
GGACTTTGTCGTCGGTACATAATCGTCAGG
TCATCAATTCCTGCTGATATGGCGAAATTGC
TGAGTATCTCTATGGACTAACAACTGCTAGG
TGCTCTGGAGCCGACCGCCGCGACATACAA
GATAGACACGTCTAAACAGCTCGTTTTCATC
AACACCATCGTGCATGCCGATCGACGTGGC
ACAAACAAATTGAATAGAAGGCATACTATAT
CGTCTACTTGGTATGGGGCACCTTGCCGTC
CAAAACCGTTCGAAAAAGATCTGTTTCTAA
TTCATCGTCAGTCGATTTGAAATTCTCTCCC
CATACGCATGGACGCAATAAGTATCGATTG
GACACCTCCTCCCAGGTTCAATGTGAAGTG
ACATCGCAACATGAACCCCGCGGGGACAGA
ATGCAGTCTTCCCTGCTTAATCTCGTTGGGT
ACAGCTGAAATGCAGTCAGGCGCGGATGGG
GGCCCCTCACGGGATATGGTGATAATGTTT
ACTAGCTTACACGTTTCTAGCAGAATTGCG
AAATGACGATAGCCTTCCACGCATATGTCCT
TGCCTCTCACATCCGAATTGGCGATGGATG
TCTCTAAATGAATTCTTATGGTCGCGACTTT
AACGCTTCCAAGATAACAACAGATGGTGCT
CCTGAATCACATCTCCTTTGATCTTGACATG

8

GTTCCACCCTGTTCCCCGGGCCAACCCGTT
AAGCCTTACTATGTGATTCGACCTAATATGG
ATAGTCCATCCGGCCATCCGTGTACAATAAT
CCACAGACTCTGTAATTTAGAATTACATGCA
CTCCTCTCATCGTATCGGCCTAATGCTAGG
ATCGGGTGCGCGATTATACGGCAACTCTGT
CGATGGCCTAGGTTGAAGGGGGATCAACA
CGGTGTACATAGGCCCTACAGCTGACGTTC
ACGTATGATGAATGCTTCCTCAATGTAATGC
TCGAATCGAGAATTCTCAGTCTTAAGGGCA
GCCATCGGAGCACGTGGCGCGGCAATATTG
ATTATGACAGAGCTATACAGCCCACTCGGG
CGATAGACTGCTGAGACGCAAACGTGATAT
TAATTACGATGGCTAGCATTCGACATATCAT
AATCAGATATTGGGTTTAGGACCTTTATCGC
AGTATTAGTACGATTTGGTGCTGTGCGAAAT
CTTATGTGCGCGTGCGAAACAATATATTGTT
CGAAGTGATATGGGATAGGTCAGTGTCATA
TAATGTAAATCGGTTCGTCTGACGCGATTTA
AGGCTCACATTGTTATCGCTAATCGGGATG
AACGGCTCAAGTGCAGCATGGCACCAAGAT
TCCGAGGGCAAACGCCGCACAGTGAGGTTT
GGCTCTCCCCTCTAATATCTTACACGTTTGT
GGGATTATAGGGATCACATGGCCACGGCCT
GTAATATTGTCATGTAGCCCGGATGATACC
GGAATACTAAAATTGGAGGGGTTCTAGGTC
ATGCTAACTGCTCGGGGCTCATGGAGTTGT
AGAGTTATCAACAGGATCTCGGAATTCCCG
TAAGCGGGATCTCCTTGCCGATAAGTTTGT
GCTGCTGCCCGTCTTCGCGCCGGAACGCG
CTTCCAAATTCTCCCTACTAACGCATGCTGA
TGCACCATTGGAGCATTCTGGGATGGGCGT

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TTATCGAAACGAGTGTTTGTCTATAATGCAT
GACGAGGTCTCTGCTGGGTAGAATTGGTGA
TTTGGAAGCGATACGGGTTATAGTCTCACG
TACTGATGGACTAGTATGCGTGAAGGAATC
GAATACTTCGACACGATGACGTAGGGAGCC
ACGCGATCAAGGACTGCCCAGTGGTCTACT
ATCTATCTTCAACAGATTGAGGGGGAGCGG
TGCCGCTGATTTAATTTTAGCATCGGTCGC
TGGTTAACTTTTAGTATCGCGCCTTTAAAGA
ATCTAATCTCCGTTAGTGTCGGGTTGATTTT
CTGCGAAATAGAACTAATTCAATTGCTTATC
TGCTTGATCGATTCGGAAGCCAGGGTGGGT
AGGGTAGTTACGTACGCCTGAATCTGAACC
ATCAGTCGTAATGAATTACTGAAGACGCGC
GATGCCTGGATAAAATTATCGCCTATGTCC
CAACTAATGGCACGACAGGCTCAGAGCATG
CTACTGTGTAGTGAGATCCGCTTATCGCCC
CATTCGTGGTCGCGTTATGCCACTGAGTAA
CAAGTGATGTCCAGTGTCTAATACGACCGC
TCGGGTCGATGGTCAAGCGGCACAGTGAC
ATTAACTTTTGCTTTCACATTGAACAAATTCT
CCCACTTCAGCACATGTACCCCCTGCTGCA
TACAGACCAGGTCTTTTGTCCACACCTTGCA
CGGGTGCCTGAATGCCTTTCCGCTGGCCTA
AGCCAGTGACGTGAATGTAAAGAGCGCTCG
CACTGTAGTCATGGAGAATTATAATCGATAG
ATAAATACGTGGCGCACCACCCCAACATCC
TCGCGGGCTGTTACTAGAAATTGTGTATACC
GTGGGGGTGATTAAAAAATGGTGAGACGTG
CTGTATGGTCTTTGTGATCTCTGCTACTATT
GGGTGCTGCATAAATCGTACCTCCAACTTG
AGGCATCATAGCTACGGAACCCGTAAAATT

10

GGTCATATACGCAAACACAACAGTAAGTAG
GTGGAGCCGAAGTGCTCTCGTGGCCGAAG
ACAACAACCTTTGCCCATGCCTTAAAGACTG
CGTGATAACCGTCTTCCCATCAGGAGGTGA
AGGCGATATGGTAATCTATAGGTATTGATG
GCAAGAGGTCGGAACCCAGCTTACTCGATA
GCGTTGTCGATCGCGCTTCCTGTGCTCCTT
CCTACAAAGTGGGATAGCATCATAGACAGG
CATCCGGGTCCAATCGCCGAACGCGTCACG
CATCGCATGATTAATTACAGTGTCGCATTAC
ATCTAGTATGTATTAGGTGGGCACCGCGGT
ACAGCATGGACAGGCGCTCACGGACACAA
AAACGCGTCAACAAAGTTAGGTATGGGTG
GCGCCAGGTGAAAACGCCAGCTCTGCTATG
GTCCTAAGTAATTGCAGCATGTCTTGAGATC
TCATAGCTACCGTCTTCAGAACGATATTAGC
TAACTTTCCCTTCCGTCTCATTACTTATGCG
GGCTTCATCGCGGTTACCGGCTGGTAAGAT
ACGTAAGCTACACTAGTAAGCATACTGCAG
GTATGAGCCGATCCTGCAATTACCCATATTG
GTTTTTGTATTTACACGTATGGCGATTACAC
TTCTTAAACTAGAACTCGTTTACTAATTCTTC
GTTCATACTCATGGCAATAGCATGATCTCGT
ATTACCATGTTATACGTAGTCATAGTGTGCC
AACAGTACGTTAACCTACAATGCTCCACGCC
GACCTTGTAGAACAGCATGATACTATATACC
CGGGCATCGCGCACCGATAACTGCAGATCA
TGGAATGACCGCTCTACGTGGATTTAACTC
GGGTGGCCCTATAGATAAATATTCTTACCAC
CGCCCTGGGATATATAGGCCGTCAGCACGT
TTATGTCCTAGTACGCAGTACGCGCCTATTA
ATATAACAGCTGTCAGTAAGGGTCCAGAATT

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CTAGGGCCGATGAATTACAAGCAGGTGAAT
AGATACGATTGGGATATTATCACAACAACTC
GCGAATGGATTATCAGTACGAGCCACGGCC
CAGCACATTATTCACCAACGGGATTAGGTG
ACGCCAGTGCGTGCTGCTACTACAATGCAT
CGCGGGTGTTGACGGTTAAGGTAGCTCGG
GCGCGATAGATGATACTGGCCCGAGACCA
GTTTCTCTATATTAACCTAGTAAGACAGGCC
TGGCCCGGAAACCGTTTCTGTACCCCGACC
TAGTATAAGACTACTGGGCCGCTAGCGGAC
TATTGACAAATCGCGCGTAGAAAATGCCTG
GGCCGTCTGCCGTCGGTTTCTTTAGCTATA
CCTTGTAATTAAATACTGGACCAACCACAGT
TTCTTCAGAGTAACCTTGTACTTTAGGCCTT1
ACATCGTCCTCCTTCTCCAACACGACCTTGT
AGCTCACTACTGGTCCACAGGCAGTTTCTT
CAGCACCAGCTTGTATCTGATGCCTGGTCC
ATTGTCCCCTTCTCCAATCGTAGCTTGTTCC
CGAATACTGGTGCTATGCCTAATTCTAGTAG
ATAACCTCGTTACCAAGCTCGTTTGCTTCAA
AAGTCTCTTGTTCCCGACGACGTAGCCAAT
AGCGGGCGCTCGTTCAGTCTCTCGAGCTCT
CCAGCGTTGGCCATGCCTTTCGCTAGTCCG
CCCTCTGGTCCTATACCTGGTTCCCCCGAG
CGGGGGCCAACACACGCTGCTCTCAAAG
CTGGTTCAGGAGCGCTGGACCCTTCCAAGT
CTCTAATGCAGTCTCTAGTTGAGATTTACTG
GAGCCATGCTCCCCTCTTATGACAACTGAG
GTTATGTTAGCCTGGAGCTTAGATACCCTCT
CACGCGCCCTGACGTTCTATTGTAGTGGAA
CTACATTCCCGTCCCACGATAACTGACGTC
GTACTCGCGTGGAACACTAGTACCGTCCGA

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CACCGGCGGATGTCTTAGTTTAGTGGTACT
TGTCGCCCTTCCAACAAAAGAAGACGTCTC
AATAGCGTGGTACCGTTTTTCCGTCCTACTC
TCACGGAGATCACTATGTAGTTTCAGCGTC
AGGGTGTCCTTTAAAACATAGAATCCGTTAG
GAGGTTTAGGGGCCCCCCGTCCCTCTCAC
GACGAAATAATAAATAGGGGGGAGCTCGGA
CCCGTCCGTCATACCAGAGAATCTAAGGGC
TGGGGGAGGATTAGACCGTCCATCCTGTCA
AAGGATGCACGTGCAGAGGAAGAGTACAC
CCATCCCAGCGAAAGTCTATCCTCATCCTG
GGGGTCCTGAAAACCATCCTCTGTCTGAGA
GTATGTTGAGGAGCGGGATGATGGCGACC
CTCCCCAACCGGGGCCCTCTGGTCCGCCTA
TAGTTTCAGAGATGAATTAGCTAAGGTTGTA
GCTTATTTTCCATAGGGTTTTGCTCCGGACC
ATCCGGTCGTGTAGCGCGATTGACTTGCCG
GGTTGTGTCCCCGTATCCAGGTCACGACCT
CATGGGGAACTAGTGGCTGTCCGGCAGTAT
CCTGGTACGCACCTCATGTGGTATGCGTGG
CTGTTGGTCCGTATATGGACCTATATATGGA
TCGAAGC (SEQ ID NO: 7)

JPEG image of Indian Flag   File Size = 1981 Bytes
                             DNA bases = 7924

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After page 13, last line, delete the present Sequence Listing in entirety and

replace with the Sequence Listing attached hereto.